

WHAT IS CLAIMED IS:

1. An optical transmission device for providing stable communication with a partner device, said optical communication device comprising:

a transmission unit for transmitting an optical signal to the partner device; and

a receiving unit for receiving an optical signal from the partner device, the receiving unit including at least a first photodetector having a plurality of light receiving units divided by separation zones, wherein the receiving unit further comprises

a lens unit for focusing the received optical signal,; and

means for detecting the optical signal focused by the lens unit and for detecting the optical signal in a condition where the focused optical signal is shifted by a designated amount from an optical axis of the optical transmission device to provide misalignment information on said optical axis of the optical transmission device.

2. The optical transmission device of claim 1 wherein the designated shifting amount is greater than the width of the separation zones on the first photodetector.

3. The optical transmission device of claim 1 wherein said detecting means includes a lens shift control unit for shifting the lens by the designated shift amount.

4. The optical transmission device of claim 1 wherein said detecting means includes a detector shift control unit for shifting the first photodetector by the designated shift amount.

5. The optical transmission device of claim 1 wherein said detecting means includes a second photodetector aligned with the optical axis of the optical transmission device.

6. The optical transmission device of claim 5 wherein said first photodetector is shifted by said designated amount from said optical axis of the optical transmission device.

7. The optical transmission device of claim 6 further comprising a beam splitter for splitting the optical signal received from the lens unit, each of the split optical signals for detection by the first and second photodetectors.

8. The optical transmission device of claim 7 wherein if the second photodetector is unable to detect a split optical signal, then said first photodetector detects a split optical signal to provide said misalignment information.

9. An optical transmission device for communication with a partner device, said optical transmission device comprising:

a transmission unit for converting an electrical signal to an optical signal;

a receiving unit for converting the received optical signal to an electrical signal; and

a first and a second photodetector, each having a plurality of light receiving unit divided by separation zones, for detecting the direction of incidence of a luminous flux emitted from a transmitting unit of an opposed partner device,

wherein the optical axes of an optical system of the first and second photodetectors are shifted from each other, and the shifting amount thereof is larger than the width of the separation zones.

10. The optical transmission device of claim 9, wherein the length of the optical paths in the direction of

the optical axes of the optical system of the first and second photodetectors are equivalent.

11. The optical transmission device of claim 9, wherein the luminous fluxes detected by the first and second photodetectors are separated by a luminous flux dividing element.

12. The optical transmission device of claim 11, wherein the light converging element is provided upstream of the luminous flux dividing element, and the optical axis of the light converging element is aligned with the optical axis of either the first or second photodetector.

13. An optical transmission device comprising:
a transmission unit for converting an electrical signal to an optical signal;
a receiving unit for converting the received optical signal to an electrical signal;
an optical system comprising a position detecting photodetector having a plurality of light receiving units divided by separation zones and detecting the direction of incidence of a luminous flux emitted from a transmitting unit of an opposed partner device and a light converging device for converging a luminous flux onto a position

detecting photodetector; and

movable means for shifting the optical axis and the position detecting photodetector of the optical system relatively within a plane perpendicular to the optical axis of the optical system.

14. The optical transmission device of claim 13, wherein the shifting amount of the movable means is greater than the width of the separation zone of the position detecting photodetector.

15. The optical transmission device of claim 13, wherein the movable means is capable of shifting the position detecting photodetector within a plane perpendicular to the optical axis of the optical system.

16. The optical transmission device of claim 13, wherein the movable means is capable of shifting the light converging device within a plane perpendicular to the optical axis of the optical system.

17. An optical transmission device having an optical axis, said optical transmission device for providing stable communication with a partner device, the optical transmission device comprising:

a transmitting unit for transmitting optical signals to the partner device; and

a receiving unit for receiving optical signals from the partner device, wherein the receiving unit further comprises,

a first photo-detector aligned with said optical axis of the optical transmission device, and

a second photo-detector mis-aligned with said optical axis of the optical transmission device,

wherein if the first photo-detector is unable to receive optical signals, said second photo-detector receives optical signals to provide continuous communication with the partner device.

18. The optical transmission device of claim 17 further comprising a beam splitter for splitting optical signals between the first and the second photodetector.